

## Research team explores new bone and tendon-related treatments

### Platelet-rich plasma offers mixed success in treating tendinopathies

The concept of using growth factors contained in activated platelets to help wound healing dates back to the early 1980s. More recently, the use of platelet-rich plasma (PRP) to treat various musculoskeletal disorders, including tendinopathies, has increased tremendously.

Tendon healing is a complex process involving many growth factors, such as platelet-derived, transforming, vascular endothelial, insulin-like, and epidermal growth factors, which are detected in higher concentrations in PRP. To date, the respective role of each type of growth factor requires further exploration. As well, recent evidence suggests varying concentration levels of these growth factors in PRP, depending on the protocol and devices used to spin the blood.

In April 2010, the WorkSafeBC Evidence-Based Practice Group conducted a systematic literature review of the effectiveness of PRP in treating tendinopathies. They found five studies of varying quality and design investigating the application of PRP in treating chronic patellar tendinosis<sup>1</sup> and chronic elbow tendinosis,<sup>2</sup> during arthroscopic rotator cuff repair,<sup>3</sup> during Achilles tendon surgery to promote healing,<sup>4</sup> and treating Achilles tendinopathy.<sup>5</sup> Lower-quality and lower-level studies<sup>1-4</sup> showed the effectiveness of PRP in treating various tendinopathies. However, the only available high-quality evidence showed that PRP injection compared to saline injection did not result in significant improvement in pain and activity.<sup>5</sup> These studies could not discount the value of co-interventions.

### Shock therapy thought to ease pain from calcified supraspinatus tendinopathy

One cause of shoulder pain is calcific rotator cuff tendinopathy, which occurs in 7% to 17% of rotator cuff tendinopathies. Extracorporeal shock wave therapy (ESWT) has been promoted as an alternative to surgical intervention in treating rotator cuff tendinopathy that fails to respond to conventional and more conservative therapies. While the mechanism is still unclear, this outpatient procedure is thought to provide long-lasting analgesia and stimulate the healing process.

In June 2010, the WorkSafeBC Evidence-Based Practice Group investigated the effectiveness of ESWT, using low- and high-level energy shock waves to treat calcific supraspinatus or rotator cuff tendinopathy in general. Their findings included two systematic reviews, one of high quality<sup>6</sup> and one of low quality,<sup>7</sup> three low-quality RCTs,<sup>8-10</sup> and one low-quality case-control study.<sup>11</sup> This included some high- and low-quality evidence to suggest *high energy* ESWT can provide pain relief and increased function, as measured by the Constant-Murley score, among patients suffering from calcific rotator cuff tendinopathy. There was no evidence on the effectiveness of ESWT in treating noncalcific rotator cuff tendinopathy.

### Low-intensity ultrasound for nonunion fractures appears effective for some

Fracture healing is a complex process involving various factors that need to occur at a specific time and place. US data show up to 10% of healing fractures develop delayed union, and a significant proportion of these become nonunions. At present, some

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experts have demonstrated a lack of agreement regarding the diagnosis of fracture nonunions.

While ultrasound has been applied in treating fractures for half a century, its role in fracture healing is not well understood. In January 2010, the WorkSafeBC Evidence-Based Practice Group investigated the effectiveness of Exogen low-intensity ultrasound in treating fracture nonunion and found three high-quality systematic reviews<sup>12-14</sup> and one large case series (n = 1317)<sup>15</sup> that showed as follows:

- No high-level primary studies exist to provide evidence of the effectiveness of low-level ultrasound.
- Low-level evidence, including large case series, showed that low-level ultrasound is effective as an adjunct to good immobilization, especially when provided by an external immobilizer.
- Low-level ultrasound may be effective among patients aged 31 to 60 with long bone or scaphoid fractures; who had comorbid illnesses; who had been treated with other drugs, such as steroids, NSAIDs, anticoagulants; or who are current smokers.

Other adjunct treatments, yet to be tested for effectiveness, are also available. These include pulsed electromagnetic field stimulation, direct current or capacitative coupling, extracorporeal shockwave stimulation,

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## pulsimeter

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### Core-Plus Plan reminder

The open enrollment period for the Core-Plus Plan under the BCMA Health Benefits Trust Fund is underway. The deadline to enroll in this program, or to make changes to your coverage if you are already participating, is 31 October 2010. New coverage or changes to existing coverage for members who submit the required plan documents by the deadline will be effective 1 January 2011.

If you have any questions regarding the open enrollment period or the plans offered under the BCMA Health Benefits Trust Fund, please visit [www.bcma.org/hbtf](http://www.bcma.org/hbtf) or contact an HBTF Administrator:

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## worksafebc

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and orthobiologics, especially the bone morphogenic protein (BMP)-7.

Full documents and other systematic reviews can be downloaded from [www.worksafebc.com/evidence](http://www.worksafebc.com/evidence).

—Kukuh Noertjojo, MD,  
MHSc, MSc

—Craig Martin, MD, MHSc  
WorkSafeBC Evidence-Based Practice Group

### References

References are available by calling Carmen Prang at 604 244-6224 or toll-free 1 800 967-5377, extension 6224 or [carmen.prang@worksafebc.com](mailto:carmen.prang@worksafebc.com) or online at [www.bcmj.org](http://www.bcmj.org).

## cdc

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early screening in high-risk CKD patients, as energy may be less of a confounder in those with less advanced disease. Once LTBI infection is established, prophylactic therapy should be considered in consultation with TB control and the patient's personal physicians. As always, an ounce of prevention trumps a pound of cure.

## cohp

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Canada's Natural Health Products Directorate places Canadians in harm's way by failing to prevent exaggerated health claims and by exposing consumers to unnecessary health risks. Given that medical claims made on behalf of NHPs typically exceed the evidence of medical benefit, and that significant safety issues with various NHPs continue to be discovered upon proper scientific testing, many Canadians will wonder if a near-billion-dollar bonanza to industry is worth the price.

—Lloyd Oppel, MD  
Chair, Allied Health Practices Committee

### References

1. Geddes J. Problems in the natural health products aisle. *Maclean's* 3 October 2009. [www2.macleans.ca/2009/10/03/problems-in-the-natural-health-products-aisle/](http://www2.macleans.ca/2009/10/03/problems-in-the-natural-health-products-aisle/) (accessed 23 August 2010).
2. Gavura S. Health Canada gets out a big rubber stamp. *Science-based Pharmacy [blog]* 15 July 2010. <http://sciencebasedpharmacy.wordpress.com/2010/07/15/health-canada-gets-out-a-big-rubber-stamp/> (accessed 23 August 2010).

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